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Title: C-reactive protein and serum amyloid A overexpression in lung tissues of chronic obstructive pulmonary disease patients

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Body: Background: Although researchers have consistently demonstrated systemic inflammation in chronic obstructive pulmonary disease (COPD), its origin is yet unknown. We aimed to compare the lung bronchial and parenchymal tissues as potential sources of major acute-phase reactants in COPD patients and resistant smokers. Material and methods: Consecutive patients undergoing elective pneumectomy or lobectomy for suspected primary lung cancer were considered for the study. Patients were categorized as COPD or resistant smokers according to their spirometric results. Lung parenchyma and bronchus sections were obtained and C-reactive protein (CRP) and serum amyloid A (SAA1, SAA2 and SAA4) were studied by RT-PCR and immunohistochemistry. Results: Our study included 85 patients with COPD and 87 resistant smokers. In bronchial and parenchymal tissues, both CRP and SAA genes were overexpressed in COPD patients as compared to resistant smokers. In the bronchus, CRP, SAA1, SAA2, and SAA4 expressions in COPD patients were 1.89-fold, 4.36-fold, 3.65-fold, and 3.9-fold the control values, respectively. In the parenchyma, CRP, SAA1, and SAA2 gene expressions were 2.41-, 1.97-, and 1.76-fold the control values, respectively. SAA4 was not overexpressed in the parenchyma. The expressions were higher in the parenchymal tissue than in bronchial tissue for both COPD and controls. The protein analysis supported the results obtained in the PCR. Conclusions: These results indicate an overexpression of CRP and SAA genes in both bronchial and parenchymal tissue in COPD. This expression differs between the parenchyma and bronchial tissue, indicating tissue/cell type specificity of these markers.